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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOSHITAKA SATO, MASAMI SATO,
TSUTOMU TOKUNAGA, and SATOSHI FURUKAWA

Appeal 2009-005955
Application 10/523,708
Technology Center 3600

Before JOHN C. KERINS, STEFAN STAICOVICI, and KEN B.
BARRETT, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

Yoshitaka Sato et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-11 and 13-15. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

THE INVENTION

Appellants' claimed invention pertains to a belt for transmitting rotational force in, for example, a scooter transmission. Spec. 1:6-8. Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A transmission belt comprising:
a belt body which is molded from a stock rubber;
chopped aramid fibers that are intermixed in said belt body and oriented in a predetermined direction of said belt body; and
chopped polyester fibers that are intermixed in said belt body and oriented in said predetermined direction;
wherein chopped polyester fibers are longer than said chopped aramid fibers.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Kumazaki	US 5,674,143	Oct. 7, 1997
Kodama	US 5,908,520	Jun. 1, 1999
Kinoshita	US 6,132,328	Oct. 17, 2000
Ito	US 2001/0039226 A1	Nov. 8, 2001

The following Examiner's rejections are before us for review:

1. Claims 1-7, 9-11, 13, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito and Kumazaki;
2. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito, Kumazaki, and Kodama; and
3. Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito, Kumazaki, and Kinoshita.

ANALYSIS

1. Claims 1-7, 9-11, 13, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito and Kumazaki

Claims 1, 3, 6, and 9

Appellants set forth arguments pertaining to independent claim 1, but do not offer separate arguments regarding dependent claims 3, 6, and 9. *See* App. Br. 6-14. We select claim 1 as the representative claim, and claims 3, 6, and 9 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2009).

Independent claim 1 recites a transmission belt comprising aramid fibers and polyester fibers intermixed in a rubber belt body “wherein chopped polyester fibers are longer than said chopped aramid fibers.”

The Examiner made the undisputed findings that Ito discloses a belt body having aramid fibers and a belt body having polyester fibers, but does not disclose a belt having both. Ans. 3; App. Br. 7. The Examiner further found that Ito discloses that the polyester fibers are longer than the aramid fibers. Ans. 3. Although Appellants contend that this finding is based on an unreasonable interpretation of Ito, Appellants concede that Ito discloses a fiber length of 1 to 10 mm, with aramid fibers, when used, having a preferred length of 3 to 5 mm, and polyester fibers, when used, having a

preferred length of 5 to 10 mm. App. Br. 7; *see also* Ito 3, para. [0052]. We agree with, and adopt as our own, the Examiner's finding that Ito discloses polyester fibers longer than aramid fibers.

The Examiner further found that Kumazaki teaches a belt made of a combination of aramid and polyester fibers. Ans. 3. Again, this finding is undisputed.² *See* App. Br. 7; *see also* Kumazaki, col. 4, ll. 44-55. The Examiner, relying on Kumazaki, concluded that it would have been obvious to modify Ito for the purpose of noise reduction in the belt and for the purpose of increased durability. Ans. 4. Appellants concede that Kumazaki addresses the problem of noise abatement, but contend that Kumazaki fails to address the problem of improved durability. App. Br. 11-12.

As an initial matter, we note that most of Appellants' arguments appear to be based on the premise that "[t]he problem confronted by the inventor(s) must be considered in determining whether it would have been obvious to combine references in order to solve that problem." App. Br. 12 (citing *Northern Telecom Inc. v. Datapoint Corp.*, 908 F.2d 931 (Fed. Cir. 1990)); *see also id.* at 11-12 (Appellants arguing that neither reference is directed to the durability problem addressed by the claimed invention). However, the Court in *KSR* clarified that, in analyzing obviousness, it is erroneous to "look only to the problem the patentee was trying to solve." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (citation omitted). One way to show obviousness is to note that there existed a known problem for which there was an obvious solution encompassed by Appellants' claims. *Id.* at 419-20.

² Kumazaki discloses para-aramid fibers, which Appellants identify as a preferred aramid fiber. *See* Spec. 3:20-21; *see also* Claim 9.

In this case, the Examiner identified two problems, noise reduction and increased durability. Appellants only specifically allege error concerning the increased durability problem. *See, e.g.*, App. Br. 9-10 (arguing that Kumazaki fails to provide a reasonable expectation of success of obtaining improved durability with blends of fibers, and that Kumazaki fails to provide a teaching that blends of fibers will improve durability); *id.* at 19-20. Appellants do not contest the Examiner's findings regarding Kumazaki's noise reduction teachings and do not offer any persuasive argument or evidence as to why the conclusion of obviousness based on the known problem of noise reduction is erroneous. As such, we are not persuaded that the Examiner failed to set forth articulated reasoning with rational underpinning to support the conclusion of obviousness. *Contra* App. Br. 8 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Further, we determine that the Examiner did not rely on impermissible hindsight, as Appellants suggest (App. Br. 8), but rather relied on the knowledge of those skilled in the art at the time of the invention.

To the extent that Appellants argue that one of ordinary skill would not combine the two cited references because they purportedly "address distinct and separate problems" (App. Br. 11), we do not find this argument persuasive. "Common sense teaches ... that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *KSR Int'l Co.*, 550 U.S. at 420. As Appellants note (App. Br. 11), both references pertain to power transmission belts, and we fail to see why one of ordinary skill in the art of such belts would ignore the

teachings of those cited references simply because they are directed to different types of belts or different problems.

We conclude that the Examiner has set forth a *prima facie* case of obviousness of claim 1, and of claims 3, 6, and 9, for which Appellants offer no separate arguments.

Claim 2

Dependent claim 2 limits the fiber orientation to that of a width direction of the belt body. For this limitation, the Examiner relies on Ito's statement that the fibers may be aligned in a direction orthogonal to a longitudinal line L of the belt. Ans. 4 (citing Ito 3, para. [0053]). The Examiner reasons that the width direction is a direction perpendicular (orthogonal) to the longitudinal line. *Id.* at 9. However, as Appellants note (App. Br. 12), there are an infinite number of directions that are orthogonal to the longitudinal line, including vertical. The Examiner does not adequately explain why one of ordinary skill would have found it obvious to select the width direction from all the possible orthogonal orientations. We cannot sustain the rejection.

Claim 4

Claim 4 limits the length of the aramid fibers to less than 3 mm. Ito discloses that the length of the fibers is selected based upon the fiber type, and is generally within the range of 1 to 10 mm. Ito 3, para. [0052]. Ito further teaches that the preferred length of the aramid fibers is 3 to 5 mm. *Id.* We are not persuaded by Appellants' argument (App. Br. 13) that one of ordinary skill in the art reading this disclosure of a preferred range would be

directed to use an aramid fiber with a length greater than 3 mm. One of ordinary skill in the art would understand Ito to teach that lengths outside the preferred range, *e.g.*, 1-3 mm, may also be used.

Claim 5

Claim 5 recites that the length of the polyester fibers is less than 5 mm. For the same reason given above for claim 4, we are not persuaded by Appellants' argument that, because Ito discloses a preferred length of 5 to 10 mm, utilizing a length of less than 5 mm would not have been obvious.

Claim 7

Claim 7 recites that the polyester fibers are subjected to a resorcinol-formalin-latex (RFL) coating treatment. We are not persuaded by Appellants' argument (App. Br. 13-14) that Ito's disclosure is solely related to an RFL treatment of canvas reinforcing fabric 90 rather than the individual embedded reinforcing fibers 114. The Examiner found, and we agree, that Ito discloses a fabric cloth made from polyester fibers, that the fabric is subject to an RFL treatment, and that, therefore, Ito discloses treating polyester fibers with an RFL coating. Ans. 4, 10 (citing Ito 3, para. [0055]). We further note that Ito discloses friction coating the canvas with rubber after the RFL treatment. Ito 3, para. [0055]. Appellants have not persuaded us that one of ordinary skill would fail to find it obvious to apply Ito's RFL teachings to polyester fibers intermixed in a rubber belt body.

Claims 10 and 11

Dependent claims 10 and 11 limit the transmission belt to a V-belt and a cogged V-belt, respectively. Appellants concede that Ito discloses both such belts, but assert that Kumazaki is directed to a problem germane to a V-ribbed belt rather than the claimed types of belts. App. Br. 14. Thus, argue Appellants, one attempting to solve the durability problem of V- or cogged V-belts “would not turn to another belt patent that is directed to a different category or genus of belt” *Id.* However, the obviousness inquiry is not limited to looking only at the durability problem sought to be solved by Appellants. See *KSR Int’l Co.*, 550 U.S. at 420. We are not persuaded that one of ordinary skill in the transmission belt art would fail to recognize the applicability of the references’ teachings even if they are directed to different types of belts. See *id.* at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”)

Claims 13 and 14

The preamble of independent claim 13 recites: “A power transmission belt of the single strand cogged V-belt type comprising” The Examiner construed the preamble as a mere statement of purpose or intended use. Ans. 10. The Examiner determined that the phrase “single strand cogged V-belt” was not to be given any patentable weight and admittedly did not address that language in rejecting claim 13. *Id.*

We disagree with the Examiner’s interpretation of the claim. In this case, the preamble does not merely state a purpose or intended use, but structurally defines the claimed invention by limiting it to a particular type of transmission belt. As the Examiner has not addressed this limitation, we

are constrained to reverse the rejection of independent claim 13 and of claim 14, which depends therefrom.

In summary, for the first rejection, we conclude that the Examiner has set forth a prima facie case of obviousness for claims 1, 3-7, and 9-11, but not for claims 2, 13, and 14.

2. *Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito, Kumazaki, and Kodama*

Claim 8 defines the chopped polyester fiber as one of a several types of fiber, including chopped PET fiber. Appellants argue that Kodama discloses a PET cord for a tire rather than a short, chopped PET fiber for a transmission belt. App. Br. 16. We are not persuaded by this argument. The Examiner relied on Kodama for the specific teaching that a PET fiber is a polyester fiber. Ans. 6; *see also* Kodama, col. 2, ll. 12 (referring to “polyester fibers such as PET fiber or the like”). Appellants do not present persuasive arguments or evidence why the ordinary artisan having this knowledge would fail to find it obvious to utilize PET as the material for the chopped polyester fiber of Ito and Kumazaki. Thus, we conclude that the Examiner has set forth a prima facie case of obviousness for claim 8.

3. *Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito, Kumazaki, and Kinoshita*

Claim 15 depends from independent claim 13. For the reasons set forth above, we cannot sustain the rejection of claim 13, and therefore the rejection of claim 15 is also reversed.

Appellants' Evidence of Secondary Considerations

Appellants have furnished a declaration of Paul N. Dunlap as evidence of secondary indicia of non-obviousness.

We are not persuaded by Appellants' argument (App. Br. 22) that the Examiner committed clear error by disregarding or discrediting the declaration evidence. The Declaration, which was submitted after the Final Rejection, was entered into the record by the Examiner in the Advisory Action, mailed July 6, 2007. In that Advisory Action, the Examiner's stated reason for maintaining the rejections was "the applicant has failed to overcome the fact that Kumazaki clearly teaches that the aramid fibers can be used in combination with polyester." Advisory Action at 2 (citation omitted). As such, we cannot conclude that the Examiner ignored the declaration as Appellants suggest. We now turn to the substance of the declaration.

Appellants contend that the Declaration evidences unexpected and superior results of the claimed invention that rebuts the Examiner's prima facie case of obviousness. *See* App. Br. 22-23. Appellants contend that the results of combining longer polyester fibers and shorter aramid fibers yields unexpected improvements in tensile strength, which according to Appellants, leads to increased durability. App. Br. 20.

Evidence of secondary considerations, such as that presented by the Appellants, must be considered en route to a determination of obviousness/nonobviousness under 35 U.S.C. § 103. Accordingly, we consider anew the issue of obviousness under 35 U.S.C. § 103, carefully evaluating and weighing both the evidence relied upon by the Examiner and the objective evidence of non-obviousness provided by Appellants.

Dr. Dunlap testifies as an expert in the field of rubber compounding for belts. Decl., para. 6. Dr. Dunlap opines that “tensile strength of short-fiber rubber composites is not easily predicted and subject to many process-specific and material-specific uncertainties.” *Id.* at para. 12. Dr. Dunlap’s opinion is limited to the unpredictability of composite tensile strength, and does not address any other property or characteristic of transmission belts. Notably, the declaration does not address noise reduction in belts and thus does not show that the claimed invention would have yielded results that would have been considered unexpected by one of ordinary skill in the art addressing the known problem of noise reduction.

While Dr. Dunlap’s declaration discusses the tensile strength test results shown in Specification Figures 3 and 4 (*see* Decl., para. 6), Appellants also argue that the Specification Figures 5, 6, and 9-12 disclose dramatic improvements in other durability factors. App. Br. 20-21. Appellants, however, do not direct our attention to any evidence that such improvements would have been unexpected by those of ordinary skill in the art. Thus, Appellants’ arguments regarding these other durability factors do not rise to the level of evidence of secondary considerations. *See In re Mayne*, 104 F.3d 1339, 1343 (Fed. Cir. 1997) (Appellants may show that the claimed invention has an unexpected property over the prior art “with evidence that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would find surprising or unexpected.”).

We find that Appellants’ declaration evidence regarding unexpected improvements in tensile strength is entitled to some weight. However, on the totality of the evidence, weighing all evidence of obviousness against all

evidence of non-obviousness, we hold that claims 1, 3-7, and 9-11 are unpatentable over Ito and Kumazaki; and that claim 8 is unpatentable over Ito, Kumazaki, and Kodama.

DECISION

The decision of the Examiner to reject claims 2 and 13-15 is reversed. The decision of the Examiner to reject claims 1 and 3-11 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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